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### The student X-factor

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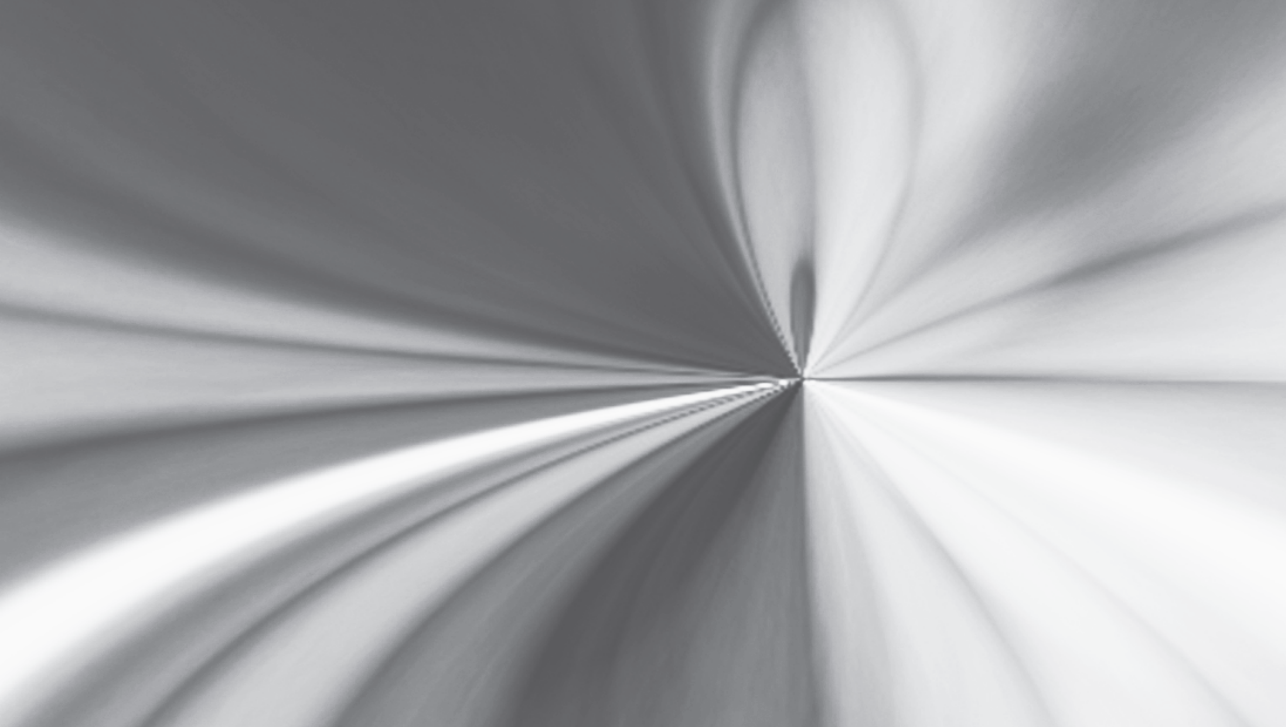
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# **Chapter 1**

**The student X-Factor?**



## INTRODUCTION

Anyone who has ever watched the television show ‘the X-Factor’ can agree with me that some have it, and some obviously don’t. While some performers make you want to change channels as quickly as possible, others immediately grab your attention and make you forget about whatever you were doing. However, it is not just the perfect pitch of their voice or their physical appearance that does it for them. It is often said to be the ‘X-Factor’ that makes the difference, the indefinable factor that determines whether one will be successful – or not.

In this dissertation, I will report on my quest for ‘the student X-Factor’. Why is it that some students are very successful in their careers in higher education, while others just can’t seem to motivate themselves to study, keep procrastinating, feel unhappy while at college, and attain low(er) grades? This question I have asked myself at the beginning of my PhD-dissertation project, and I hope to have answered it to some degree at least.

## BACKGROUND

Education has an extraordinary important function in our society. One of the purposes of education can generally be defined as preparing students for effective participation on the labor market and in our society in general. The quality of education, therefore, can be said to affect many facets of human life and the social community. The better and higher a society’s population is educated, the higher for instance its state of welfare, health, and average rate of income. Furthermore, education is expensive in terms of investments in money as well as time and effort made by the community and by students and their parents. Therefore education should be as efficient as possible while at the same time aimed at the highest possible level of quality. For these and other reasons educational research is trying to find an answer to the question “What works well and why in education?”.

Central to all educational processes are the students themselves; education is aimed at facilitating the learning processes and development of students. Different scientific disciplines have contributed to the unraveling and explanation of a large number of factors and processes involved in students’ academic attainment. Each of these disciplines, for instance educational science, educational sociology, and educational psychology, brought its own theories, approaches and methodologies. In brief, educational science focuses on school- and class-level phenomena, educational sociology focuses on educational systems and on phenomena at the group level, such as social interactions and their consequences, and educational psychology focuses on variables and processes at the individual level, such as how students learn and develop.

This dissertation combines in particular the psychological and the sociological approach at the student level. Sociological variables like, for instance, students' sex and characteristics of their personal network have been included. Central psychological variables are students' personality, aspects of social comparison, and learning related concepts like students' achievement motivation. This dissertation aims to clarify the relationship among these concepts and their relationships with students' attainment in higher education. Each of these concepts have been previously studied in relation to academic attainment, as will be summarized below. An overall picture, however, is still missing.

This dissertation has been written within the context of three large-scale longitudinal cohort studies in secondary education, 'Voortgezet Onderwijs Cohort Leerlingen' (VOCL'89, VOCL'93, and VOCL'99) (Hustinx, Kuyper, Van der Werf, & Zijlsling, 2005a; Hustinx, Kuyper, Van der Werf, & Zijlsling, 2005b; Zijlsling, Kuyper, & Van der Werf, 2005), which have been conducted between 1988 and 2006 by the Groningen Institute for Educational Research (GION), in cooperation with Statistics Netherlands (CBS). This dissertation study is a follow-up of the first two cohorts, VOCL'89 and VOCL'93, and restricted to students in higher education (see also Chapter 2). Students' personality, characteristics of their personal network and aspects of social comparison had already been studied within VOCL '99 among students in secondary education, as part of the research program '(social) psychological determinants of educational attainment' (see, for example, Lubbers, 2004; Wehrens, 2008). A follow-up among the students who participated in VOCL '89 and VOCL '93 provided the opportunity to study the importance of and relations between the same concepts among student in higher education as well<sup>1</sup>.

At the end of this chapter, the expected relations and research questions will be introduced. First, the main concepts central to this dissertation are discussed: personality, personal network and social comparison.

## PERSONALITY AND ACADEMIC ATTAINMENT

Nowadays, most research on personality includes measures assessing what is known as the Big Five (De Raad, 2000): an empirically based descriptive taxonomy of five broad personality traits describing the socially most important individual differences in behavior (Goldberg, 1990; John & Srivastava, 1999). The first four of these bipolar personality traits are usually called Extraversion, Agreeableness, Conscientiousness, and Emotional Stability (or, conversely, Neuroticism). Some discussion remains on the fifth factor, which has been defined as, amongst others, Openness to Experience (Costa & McCrae, 1988),

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1 This study was sponsored by the Netherlands Organisation for Scientific Research (NWO), grant number 015-001-031.

Intellect (Digman & Inouye, 1986), or, in The Netherlands, Autonomy (Hendriks, 1997; Hendriks, Hofstee, & De Raad, 2002).

The first factor, Extraversion, describes individuals as energetic, socially oriented, enthusiastic and vigorous. Agreeable individuals are considered to be friendly, generous, helpful and peaceful. Conscientiousness refers to the need for achievement and success, as well as being reliable, organized, systematic and precise. Neuroticism, the opposite of Emotional Stability, concerns the tendency to be nervous, anxious, emotional, and easily overwhelmed. Finally, given the personality instrument used, Autonomy is the fifth factor relevant to this dissertation. Autonomous individuals can be characterized as sharp, critical, interested, and resourceful (De Raad & Schouwenburg, 1996; Hendriks, Hofstee, & De Raad, 1999a).

Most of these personality traits have been found to be related with diverse aspects of academic attainment as well as student behavior such as learning styles (see, for instance, Blickle, 1996), motivation (see, for instance, Busato, Prins, Elshout, & Hamaker, 1999; Busato, Prins, Elshout, & Hamaker, 2000), and procrastination (see, for instance, Lay, Kovacs, & Danto, 1998; Schouwenburg & Lay, 1995). Two of these traits, Conscientiousness and Autonomy, are both theoretically and empirically of special interest when considering the effect of personality on educational attainment. Numerous studies have shown that both high conscientiousness and high autonomy are beneficial for learning processes as well as educational outcomes (Blickle, 1996; Bratko, Chamorro-Premuzic, & Saks, 2006; Busato et al., 1999; Busato et al., 2000; Chamorro-Premuzic & Furnham, 2003a; Chamorro-Premuzic & Furnham, 2003b; Conard, 2006; De Fruyt & Mervielde, 1996; Lievens, Coetsier, De Fruyt, & De Maeseneer, 2002; Lounsbury, Sundstrom, Loveland, & Gibson, 2003; Paunonen & Ashton, 2001; Poropat, 2009; Van Bragt, Bakx, Van der Sanden, & Croon, 2007).

In this dissertation, the relationship between personality and educational outcomes will be further examined. Furthermore, the relationship between personality, personal network, social comparison, and learning related variables like achievement motivation and procrastination will be explored. These variables may be intricately interrelated as well. For instance, more extraverted students might find it easier to come in contact with other students and form new friendships than introverted students. These new friendships might provide students with support during the years in higher education, support which might be different from support provided by family members, and this in turn possibly influences students' results. Furthermore, highly motivated conscientious students might seek more social comparison because they are looking for ways to perform better. Students might use this social comparison information, and in particular their interpretation of it, for improving their own study habits, which in turn might affect their results.

## PERSONAL NETWORK, SOCIAL SUPPORT, AND ACADEMIC ATTAINMENT

The research area of personal networks and social support is exceptionally broad and complex, with theoretical as well as methodological input from several disciplines, for instance sociology, social psychology and anthropology (Wasserman & Faust, 1994). Although social support can only occur within a personal network, it is important to distinguish between these two concepts. Social support involves support that is available and/or actually provided by network members and can consist of, for instance, emotional, informational, or instrumental support. The other concept – personal networks – focuses on participation in social groups per se, without taking into account the intention to exchange help or support (Cohen, Gottlieb, & Underwood, 2001). Research on personal networks is mainly aimed at the *structure* of human relations, while research on social support is mainly concerned about the *content* of such relations (Pescosolido & Levy, 2002).

The structure of a person's personal network, the support received from network members, and the quality and quantity of social interactions have all been identified as potential predictors of health and well-being (Cohen, Doyle, Turner, Cuneyt, & Skoner, 2003). Within educational research, social relations as well as social support have been found to affect students' motivation and self-esteem, and to affect academic attainment (Berndt, Laychak, & Park, 1990; Cutrona, Cole, Colangelo, Assouline, & Russell, 1994; DeBerard, Spielmans, & Julka, 2004; Hay & Ashman, 2003; Keefe & Berndt, 1996; Levitt, Guacci-Franco, & Levitt, 1994; Levitt, Levitt, Guacci-Franco, & Silver, 1995; Lubbers, 2004; Malecki & Demaray, 2005; Richman, Rosenfeld, & Bowen, 1998; Robbins et al., 2004; Ryan, 2000; Wentzel, Barry, & Caldwell, 2004). It can be noted, however, that most of these studies have been restricted to peer groups or groups of friends, or to the influence of parents and parenting style. Therefore, in this dissertation the influence of other network members (e.g. other family members, neighbors, classmates, etcetera) on educational attainment will be examined as well. Within the context of higher education, this is especially relevant since students who enter higher education face a number of changes in their social environment. They often 'leave the nest' and meet new people such as teachers, other students, or co-workers at their internship. The way they handle these changes, for instance whether they make contact easily, as well as the support that is available within their old and their new personal network may affect the results they attain during higher education.

Furthermore, differences between students concerning their type of personal network will be examined, as well as the relationship between the type of network and personality. Much is already known about the association between personality and personal relationships, but this knowledge mostly concerns dyadic (one-on-one) relationships such as

between parent and child or between spouses or peers. Both Agreeableness and Extraversion, for instance, have been found to be related to peer acceptance and friendship (Jensen-Campbell et al., 2002), and Neuroticism has been found to be related to negative interactions in marriages (Donnellan, Conger, & Bryant, 2004). In this dissertation, it is further examined whether different types of network can be identified among students in higher education, and whether personality affects the type of personal network that students have.

## **SOCIAL COMPARISON AND ACADEMIC ATTAINMENT**

Research on social comparison started with Festinger's (1954) social comparison theory. He stated that "There exists, in the human organism, a drive to evaluate his opinions and abilities" (p. 117). Social comparison research from that moment on has aimed to clarify to what degree people are inclined to compare themselves, in what way they compare, in what directions and for what reason, and, finally, to study the consequences of social comparisons. It is assumed that people can compare themselves upward (with others who are doing better), lateral (with others who are doing equally well) or downward (with others who are doing worse). Furthermore, social comparison can be used in a contrasting way (with a focus on differences) or in an identifying way (with a focus on similarities) (Buunk, Collins, Taylor, & Van Yperen, 1990; Collins, 1996; Collins, 2000). Social comparison can occur because of the need for self-evaluation, self-enhancement (the need to feel better) or self-improvement (the need to perform better) (Buunk & Mussweiler, 2001; Dijkstra, Kuyper, Van der Werf, Buunk, & Van der Zee, 2008). Finally, a number of consequences of social comparison have often been distinguished, for instance affective, cognitive and behavioral consequences (Dijkstra et al., 2008; Mussweiler & Strack, 2000). Affective consequences are, for instance, anxiety or stress as a result of comparison, cognitive responses concern changes in, for instance, the academic self-concept of students and an example of behavioral consequences are students' actual academic attainment (Dijkstra et al., 2008). Furthermore, Wehrens, Buunk, Lubbers, Dijkstra, Kuyper, and Van der Werf (2010) distinguished three responses to social comparison; empathic, constructive and destructive responses. This study showed that an empathic response was positively related to performance on reading comprehension, whereas a constructive response compensated the negative relationship between destructive response and reading comprehension.

It is especially the direction of comparison that has been found to affect educational attainment. Blanton, Buunk, Gibbons, and Kuyper (1999) and Wehrens, Kuyper, Dijkstra, Buunk, and Van der Werf (2009) have found that upward comparison leads to improved academic performance. Upward comparison possibly provides students with informa-



tion on how to improve their performance, or maybe others' high performance can set a higher standard for students' own performance.

Furthermore, it has also been found that social comparison is related to personality. For instance, people with low emotional stability compare themselves more often with others than more stable people (Buunk & Gibbons, 2006; Van der Zee, Buunk, & Sanderman, 1996). Since both personality and social comparison have appeared to affect educational outcomes, a natural next step is to examine these variables in a joint model, to learn more about whether and how they affect each other.

## **OTHER, LEARNING RELATED, VARIABLES PREDICTING ACADEMIC ATTAINMENT**

One of the most important predictors of educational attainment is often said to be achievement motivation. Generally it has been found that the higher the students are motivated, the higher their academic performance (Archer, Cantwell, & Bourke, 1999; Eppler, Carsen-Plentl, & Harju, 2000; Hofman & Van den Berg, 2004; McKenzie, Gow, & Schweitzer, 2004; Robbins et al., 2004; Zeegers, 2004).

Another important predictor in education is procrastination (Ferrari, 2004; Lay, 1986; Steel, 2007). It is generally assumed that procrastination has a detrimental effect on academic performance. Results of some studies indeed showed an adverse effect of procrastination on academic performance (Fritzsche, Young, & Hickson, 2003; Jackson, Weiss, Lundquist, & Hooper, 2003; Robbins et al., 2004; Rothblum, Solomon, & Murakami, 1986; Tice & Baumeister, 1997; Wesley, 1994). However, in other studies this effect did not occur (Beck, Koons, & Milgrim, 2001; Cassidy & Johnson, 2002; Pychyl, Morin, & Salmon, 2000).

Furthermore, academic performance in higher education appears to depend on the amount of time students spent on studying and – opposing – the time students spent on work. Whereas time spent on studying can have a positive effect on attainment (Van den Berg, 2002; Van den Berg & Hofman, 2005), time spent on work can have a negative impact, because it interferes with time spent on studying (Curtis & Shani, 2002; Van den Berg, 2002; Van den Berg & Hofman, 2005).

Finally, it has been hypothesized that self-esteem or self-concept has a positive effect on academic performance. Some evidence for this hypothesis was reported by Levitt et al. (1994), who found self-concept to predict Grade Point Average (GPA) of students in secondary education. However, others were not able to confirm this relationship (Clifton, Perry, Stubbs, & Roberts, 2004; Lane, Lane, & Kyprianou, 2004; Robbins et al., 2004).

The learning related variables mentioned above – achievement motivation, procrastination, time spent studying, time spent working, and self-esteem – can be expected to (partly) mediate the hypothesized relationships between the three main concepts

–personality, personal network and social comparison – and academic performance. In the next section these relations will be further elaborated.

## EXPECTED RELATIONS AND RESEARCH QUESTIONS

Figure 1 depicts the expected relations of personality with social comparison and personal network, and the relation of these concepts with the possible mediators and with attainment. The research questions studied in this dissertation, as will be elaborated further on, largely cover the expected relations. However not all possible relations could be studied.

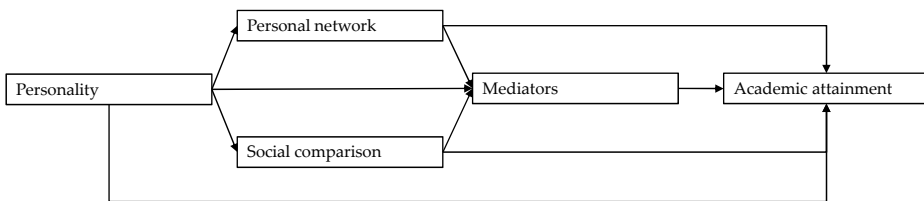


Figure 1: Expected relations

Personality, personal network and social comparison might have a direct effect on academic performance, but this relationship might also be (partly) mediated by more specific, learning related variables as described in the previous paragraph. Broad personality dimensions like the Big Five model are summary labels for individual differences in concrete behaviors. For instance, someone who is talkative, energetic and outgoing is often characterized or labeled as being an extraverted individual. These behaviors in turn can affect students' personal network; being extraverted for instance possibly affects the number of peer relations because extraverted students come in contact with other students more easily than more introverted students.

Furthermore, being uncertain, nervous and negative are labels often given to people who have low emotional stability or, in other words, are perceived as being neurotic. In order to reduce these feelings of uncertainty, students possibly seek other students who are even worse off... it can always get worse. Also, students who are very much focused on performing well possibly are very much interested in finding others who performed better than themselves in order to find out how they did that. So, students' behavioral tendencies might also affect the way they compare themselves.

Cues for judging someone as conscientious are high achievement motivation (e.g., working hard, being precise) and lack of procrastination (e.g., finishing tasks on time). Given the relevancy of these behaviors for performing well in education, it seems reasonable to assume that precisely achievement motivation and lack of procrastination account

for much of the relationship consistently found between Conscientiousness and academic achievement.

Finally, education takes place within a social context; friends, family, parents and teachers are all possibly involved in some way in students' educational careers and thereby can have influence on their academic success. For instance, the personal network that surround students might function as a safety net that provides support when students face certain setbacks like receiving lower grades than they expected. Or students with very successful friends or parents maybe are more motivated themselves to perform well during their study.

In summary, a number of important concepts from the fields of educational sociology and educational psychology will be integrated by focusing on the relationships between personality, personal network, and social comparison variables, and their effects on academic attainment of students in higher education. More precisely, this dissertation seeks answers to the following research questions which partly cover the expected relations:

1. What is the relationship between students' personality, their personal network, and their motives for and direction of social comparison?
2. What is the relationship between characteristics of students' personal network, the social support they receive, and their academic attainment? Is this relationship mediated by students' achievement motivation and procrastination, the time they spent studying and working, and their self-esteem?
3. What is the relationship between students' personality and their academic attainment? Is this relationship mediated by students' achievement motivation, procrastination, and time-on-task?

## THE STRUCTURE OF THIS DISSERTATION

This dissertation is organized into seven chapters. Chapter 2 consists of an overview of the data and methodology used in this dissertation, as well as a description of the larger cohort study in which this dissertation is embedded.

Chapter 3 examines the question whether students' personality is related to their type of personal network, including sex as a covariate. This chapter aims to provide a partial answer to research question 1.

Chapter 4 addresses the question whether personality is related with motives for social comparison as well as the direction of comparison. Furthermore, it is examined whether the association between personality and the direction of comparison is mediated by motives for comparison. Like Chapter 3, this chapter aims to provide a partial answer to research question 1.

Chapter 5 is aimed at exploring the association between personal network characteristics and social support, and diploma attainment and study progress. In addition, the mediating roles of achievement motivation, time spent on studying and (paid) work, procrastination, and self-esteem is examined. This chapter aims to provide an answer to research question 2.

Chapter 6 is aimed at examining the relationship between personality, learning related variables, and academic attainment, as measured by grade-point average (GPA) and study delay. More specifically, this chapter addresses the question whether the learning related variables mediate the effect of personality on academic performance. Next to procrastination, the mediating role of motivation, time spent studying and self-esteem is investigated. Also, the possibly moderating role of sex is addressed. This chapter aims to provide an answer to research question 3.

Finally, Chapter 7 provides a summary and discussion of the main findings of the previous chapters. Furthermore, this chapter discusses the strengths and limitations of the approach used in the present study, and suggestions for further research are given.

